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IS 7152 (1992): Book room doors s [MED 24: Security Equipment]

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IS 7152 : 1992

भारतीय मानक

पुस्तक कक्ष के दरवाजे – विशिष्टियां

(पहला पुनरीक्षण)

Indian Standard

BOOK ROOM DOORS – SPECIFICATIONS

(*First Revision*)

UDC 683.343 : 69.028.1

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Security Equipment Sectional Committee, HMD 24

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Security Equipment Sectional Committee had been approved by the Heavy Mechanical Engineering Division Council.

Vault (strong room) doors are used mainly in banking industry to protect the contents of vault (strong rooms) from burglarious attack and also against damage to valuables from fire. These doors may also be used by other organizations like financial institutions, commercial, industrial, defence and mercantile organizations etc.

Earlier the vault doors and strong room doors were considered to be two different items. Accordingly IS 11188 : 1987 'Vault room doors' was published covering requirements of vault doors and IS 7152 : 1974 'Strong room doors' covered the requirements of strong room doors. Under the present circumstances, the vault doors and strong room doors are considered to be synonymous. Hence during the revision of IS 11188, its scope has been modified to cover the requirements of vault (strong room) doors. The scope of this standard (IS 7152) has therefore been modified to cover the requirements of only the book room doors.

This standard was first published in 1974 and is being revised to modify the requirements regarding classification of doors. According to this standard, the book room doors though similar to vault (strong room) doors, have a lesser degree of protection against theft in comparison to vault (strong room) doors but have a comparatively higher degree of protection against fire hazard. In this revision, testing of doors similar to that specified for vault (strong room) doors has also been specified.

In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (revised)'.

Indian Standard

BOOK ROOM DOORS – SPECIFICATIONS

(First Revision)

1 SCOPE

This standard lays down the requirements regarding construction of book room doors which afford a degree of protection against burglarious attacks and fire.

2 REFERENCES

The standard listed in Annex A are necessary adjunct to this standard.

3 TERMINOLOGY

3.1 Book Room Doors

A device which stands in an upright position with door or doors swinging or receding at the sides and provided with vestibules with substantial hinges and locking mechanism capable of withstanding the stresses and exposure to burglarious or fire attacks including fall and force for a minimum period of time when tested in accordance with this standard.

4 CLASSIFICATION

<i>Classification Code</i>	<i>Burglar Resisting Capacity</i>	<i>Fire Resisting Capacity</i>
(1)	(2)	(3)
BR-TL15-FR90	15 min	90 min
BR-TL15-FR60	15 min	60 min

NOTE — Book room doors have tool resisting capacity for 15 minutes on all sides but do not have oxy-acetylene torch resisting capacity.

5 DIMENSIONS

The dimensions of the book room doors shall be as given in Table 1.

6 MATERIAL

Materials used in the manufacture of book room doors shall be as given in Table 2.

7 CONSTRUCTION

7.1 Doors (See Fig. 1).

7.1.1 Ventilating Grill Gate (Inside)

Ventilating grill gate shall be made out of mild

steel angles or plates or channels with mild steel rods welded in a rigid frame. The mild steel rods shall be welded on the underside of the frame with the holes drilled in the upper and lower horizontal member of the shutter frame after passing through the flats or channels at the centre of the shutter frame. The grill gate is hinged in book room door's frame such that it opens inside, either from left to right or from right to left as required by the user.

NOTE — The provision of grill gate is optional.

7.1.1.1 An unpickable dual control locking device, capable of being operated from both the sides of the door shall be fitted in the grill gate.

7.1.2 Main Door (Outside)

The main door shall be made out of mild steel plates conforming to IS 2062 : 1984 and IS 226 : 1975. It shall be backed with drill-resisting layer under the locking mechanism which shall be further backed by mild steel plate to resist hammer blows.

7.1.2.1 The door have smooth finish and shall fit snugly into the door frame. The gap at any place between the door edge and the frame shall not be more than 1.0 mm when the door is in locked position and in this locked position the door shall not have a play more than 1.0 mm in the direction in which the door opens.

7.2 Door Frame

7.2.1 Rebate of the Door Frame

The rebate of the door frame shall be formed by mild steel sections as specified in Table 1. The vertical rebates shall be riveted with the side members of the door frame and shall conform to dimensions specified in Table 1. Similarly top rebate shall be riveted with the top member. The entire door frame shall be so constructed that it can withstand any shock or impact due to force, fire, fall and burglary attacks that are likely to be encountered during service.

Table 1 Dimensions of Book Room Doors and Their Components(*Clauses 5, 7.2.1, 7.3.2.1; and Fig 1*)

All dimensions in millimetres.

Sl No.	Particulars	Class of Door	
		BR-TL15-FR60	BR-TL15-FR90
(1)	(2)	(3)	(4)
1. Overall dimensions of book room doors	Height (<i>H</i>) Width (<i>W</i>)	<i>Max</i> 2 150 <i>Min</i> 2 000 <i>Max</i> 1 150 <i>Min</i> 1 000	2 150 2 000 1 150 1 000
2. Inside dimensions for clear opening	Height Width	<i>Min</i> 1 880 <i>Min</i> 770	1 880 770
3. Thickness of door frame channel or section made out of M. S. plates		5	5
4. Square section of the rebate (see Note 1)	Square dimension Diameter of rivets Number of rivets	16 8 27	16 8 27
5. Thickness of grill gate angles or section made out of M. S. plates (Provision of grill gate is optional)		10	10
6. Diameter of grill gate rods		16	16
7. Thickness of door slab (thickness over rebates)		10	10
8. Thickness of door over bolt work, <i>Min</i>		18	18
9. Thickness of drill resisting layer under the locking mechanism, <i>Min</i>		3	3
10. Wall thickness		230 to 305	305 to 450
11. Holdfasts (size)	Length Width Thickness Number on each side	200 50 5 3	200 50 5 3
12. Number of locks		2	2
13. Throw of lock bolt, <i>Min</i>		8	8
14. Number of shooting bolts on hinge side (See Note 2)		4	4
15. Number of shooting bolts on opposite side		4	4
16. Cross-sectional area of (each) shooting bolt in mm ²		805	805
17. Depth of engagement of shooting bolts		15	15
18. Thickness of fire resisting compound (in the door)		Adequate to withstand fire resistance test for not less than 60 min	Adequate to withstand fire resistance test for not less than 90 min

NOTES

1 The rebate can be made integral with the frame section into a 16 mm square rebate.

2 Instead of shooting bolts on hinge side, a continuous dogging bar of equivalent or more strength may be welded on hinge side. Alternatively fixed bolts may also be provided at the hinge side.

Table 2 Materials to be Used in the Manufacture of Different Parts of Book Room Doors

(Clause 6)

Sl No.	Part	Materials
1.	Doors, door frame, bolt work, grill gate and other mild steel components	Mild steel conforming to IS 2062 : 1984 ; or IS 9550 : 1980 ; or Mild steel conforming to IS 226 : 1975; Mild steel rounds and flat conforming to IS 1731 : 1971 and IS 1732 : 1989
2.	Door fittings	Tin bronze conforming to Grade 1 of IS 306 : 1983 ; or Cast brass conforming to Grade III of IS 292 : 1983 ; or Zinc base alloy conforming to IS 713 : 1981 ; or Suitable stainless steel conforming to IS 1570 (Part 5) : 1985 ; and Mild steel with epoxy powder fusion coating
3.	Drill-proof layer and guard plate	Carbon steel case hardened to 55 HRC <i>Min.</i> Case depth 0.25 mm <i>Min</i> (with a minimum of 0.4 percent carbon)
4.	Welding electrodes	Conforming to IS 814 (Part 1 & Part 2) : 1974
5.	Rivets	Conforming to IS 2155 : 1982 ; or
6.	Primer	Red oxide-zinc chromate conforming to IS 2074 : 1979
7.	Putty	Putty used on metal frames conforming to IS 419 : 1967
8.	Under coating and finishing	Synthetic enamel, Type 1 conforming to IS 2932 : 1974

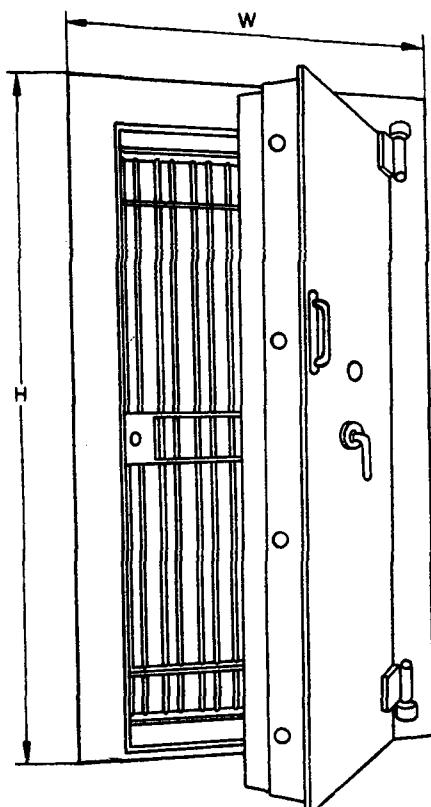


FIG. 1 DIMENSIONS FOR BOOK ROOM DOOR

7.3 Locking Mechanism

7.3.1 Lock Case

It shall be solid flange on all the four sides built of not less than 3 mm mild steel plates firmly secured to the door slab making the door slab and lock case integral. However the plate thickness, where bolt passes, shall be 5 mm, *Min.*

7.3.2 Bolt Work

7.3.2.1 The number bolts and their minimum dimensions shall be in accordance with the requirement specified in Table 1.

7.3.2.2 Construction

The bolt work shall be mounted on a secure base such as the door slab and not on the lock case cover. A centrally situated strong shaft shall actuate the cross straps (rigidly fixed to the shooting bolt carrier strap), which transmits to the shooting bolts on front side. The shaft shall be drive resistant and it shall be secured from inside by providing a retaining plate.

7.3.2.3 For convenient operation of the bolt work mechanism, square or round bearing pillars shall be provided for the sliding arms.

7.4 Locks

7.4.1 The shooting bolt mechanism shall be controlled by two 8 sheet levers, high-precision-dual-control-unpickable special-key locks.

7.4.2 The lock shall be provided with stainless steel keys in duplicate. Alternative, one or both of the locks shall be three wheel combination lock capable of one million changes of combination. Additional key lock/combination lock can be provided if required by the customer.

7.4.2.1 The general arrangements of the locks, their materials and workmanship shall be in accordance with IS 729 : 1979.

7.4.3 The lock shall be fixed with at least four bolts of M6 size or 6 bolts of M5 size such that any pressure applied on the bolts either directly or through the handle of the door, in not transmitted to the fixing screws of the lock or locks. All working parts of the lock shall have corrosion resistant protective coatings capable of withstanding exposure for 72 hours to air containing a 2 percent salt solution.

7.4.4 Automatic Relocking Device

An automatic relocking device shall be fitted in the door which, being always on guard, shall come into operation if a lock is dislodged by explosives or attacked by other means.

7.5 Door Fittings

7.5.1 Hinges

Strap hinges forged or fabricated from a plate appropriate thickness shall be suitably bolted and/or welded to the door shutter and the same shall be pivoted over pivot which will be bolted or welded to the door frame. The hinge-pivot shall be such that the door moves without any appreciable friction or play and permits a clear opening of the passage.

7.5.1.1 Adjusting bolt

An adjusting bolt shall be provided at the pivot-hinge to facilitate height adjustment of the door shutter which may get lowered in the door frame due to wear in the pivot. The adjusting bolt head shall have cross holes for inserting a tommy for the adjustment or a square head of suitable spanner size.

7.5.2 Handle shall be painted or powder coated or shall have durable finish of nickel or chromium plating.

8 TEST AND CRITERIA FOR CONFORMITY

8.1 Three samples, selected by the inspecting agency shall be tested as follows:

<i>Sample No.</i>	<i>Nature of Test</i>	<i>Relevant IS No.</i>
(1)	(2)	(3)
1	Burglary resistance	IS 11188 (Part 2) : 1991
2	Fire endurance	IS 11188 (Part 3) : 1991
3	Fire and stream-hose	IS 11188 (Part 3) : 1991

8.2 The doors shall be considered to be conforming to the requirements of this standard if they successfully complete the tests for a period as specified in column (2) and (3) of **4** of this standard.

8.3 The tests specified in **8.1** shall be considered as type tests and shall be carried out for initial approval of the design or at any subsequent change in the design of the book room doors. These tests shall also be carried out one in two years and shall cover the complete range of the product over a period of time.

8.4 Test for Burglary Resistance

8.4.1 The book doors shall be able to resist entry when attacked continuously at a given point or area in accordance with **5** of IS 11188 (Part 2) : 1991 using tools specified in **2.2** to **2.8** of IS 11188 (Part 2) : 1991 for a net working time [see **3.1** and **3.2** of IS 11188 (Part 2) : 1991] of 15 minutes.

8.5 Tests for Fire Resistance

8.5.1 The book room doors shall be tested for fire resistance tests consisting of fire endurance test and fire and stream-hose reheat test in accordance with **4.4** and **4.5** of IS 11188 (Part 3) : 1991 respectively.

8.5.2 Furnace

Furnace used for testing the book room doors shall conform to **4.2.2** of IS 11188 (Part 3) : 1991 and shall be able to achieve temperatures

as given below corresponding to the time elapsed:

Time min	Furnace Temp °C
5	538
10	704
15	760
20	793
25	821
30	843
40	878
50	905
60	927
70	946
80	963
90	978

8.5.3 Fire Endurance Test

During fire endurance test, the furnace fire [see 4.4.3 of IS 11188 (Part 3) : 1991] shall be continued for a period of 60 min in case of book room doors of Class BR-TL15-FR60 and 90 min in case of book room doors of Class BR-TL15-FR90 respectively.

8.5.4 Fire and Stream-Hose Test

During fire and stream-hose test, the door assembly shall be subjected to fire exposure [see 4.5.2 and 4.5.5 of IS 11188 (Part 3) : 1991] for a period of 30 minutes and 45 minutes in case of book room doors of class BR-TL15-FR60 and BR-TL15-FR-90 respectively.

9 DESIGNATION

Book room doors shall be designated by common name, classification of door and number of this standard.

A book room door of Class BR-TL15-FR90 shall be designated as:

Book Room Door BR-TL15-FR90 IS 7152

10 MARKING

All book room doors shall be marked with the manufacturer's name or trade-mark, the words 'Book room doors', class of the door and the year of manufacture at the top horizontal surface of the lock case.

10.1 Certification Marking

Details available with the Bureau of Indian Standards.

10.2 Marking on Keys

The keys shall be marked with an identification number which shall not be the same as the serial number of book room door.

11 INSPECTION

The purchaser or his authorized representative shall normally have free access to inspect the book room door at various stages of manufacture.

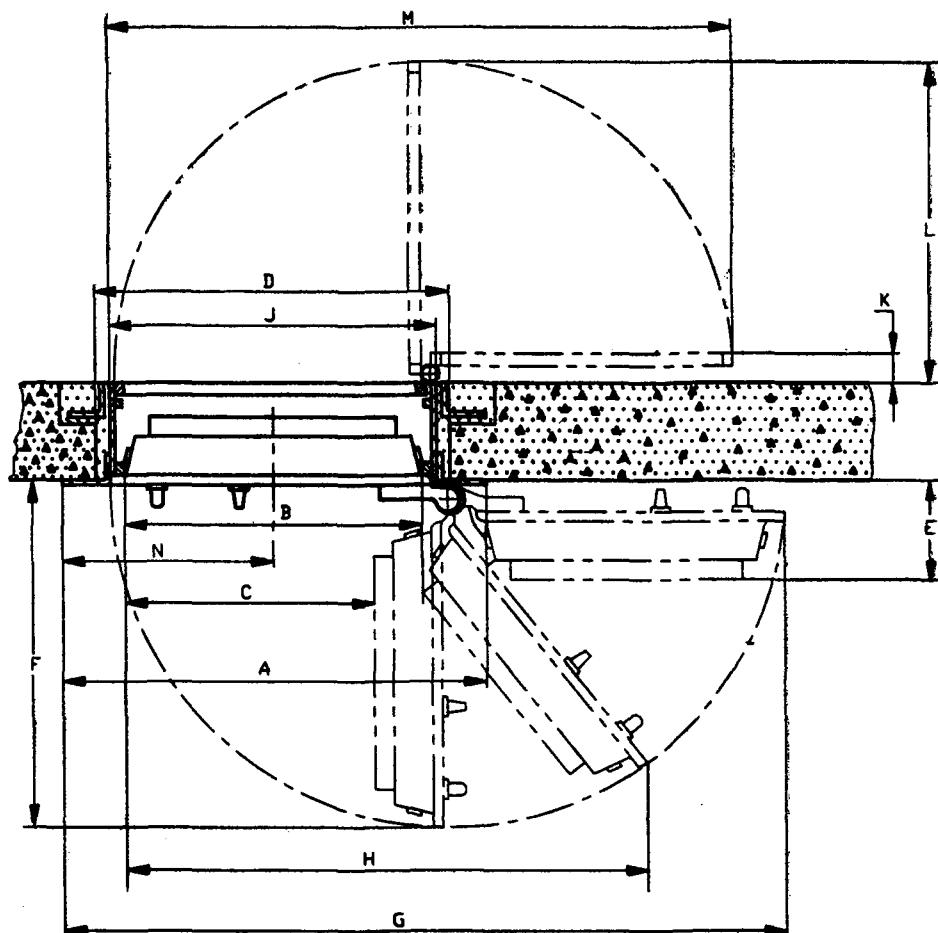
12 PACKING

All the components and parts shall be packed in such a way that no damage is caused to them during transit. The keys shall be sealed in a box and despatched separately to the purchaser in a foolproof manner.

13 INSTRUCTION FOR INSTALLATION

The manufacturer shall provide full details for installation of the book room door to the purchaser. They shall also depute their mechanic, if required by the purchaser, to install the book room doors.

14 INFORMATION TO BE SUPPLIED BY MANUFACTURER TO PURCHASER



- a) Width over door frame, A.....
- b) Clear opening, door open at 180°, B.....
- c) Clear opening, door open at 90°, C.....
- d) Wall opening, D.....
- e) Projection of door, open at 180°, E.....
- f) Projection of door, open at 90°, F.....
- g) Overall width of door and frame when door is open at 180°, G.....
- h) Minimum overall width of door and frame to give minimum clear opening, H.....
- j) Width over gate frame, J.....
- k) Projection of gate, open at 180°, K.....
- m) Projection of gate, open at 90°, L.....
- n) Overall width of gate and frame when gate is open at 180°, M.....
- p) Distance from centre line of door opening to edge of frame, N.....
- q) Shipping data
 - i) Height of case, mm.....
 - ii) Width of case, mm.....
 - iii) Depth of case, mm.....
 - iv) Net mass, kg.....
 - v) Gross mass, kg.....

ANNEX A

(Clause 2)

LIST OF RELATED STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
226 : 1975	Specification for structural steel (standard quality) (<i>fifth revision</i>)	1731 : 1971	Dimensions for steel flats for structure and general engineering purposes (<i>first revision</i>)
292 : 1983	Leaded brass ingots and castings (<i>second revision</i>)	1732 : 1989	Dimensions for round and square steel bars for structural and general engineering purposes (<i>first revision</i>)
306 : 1983	Tin bronze ingots and castings (<i>third revision</i>)		
419 : 1967	Putty, for use on window frames (<i>first revision</i>)	2062 : 1984	Weldable structural steel (<i>third revision</i>)
713 : 1981	Zinc base alloy ingots for die castings (<i>second revision</i>)	2074 : 1979	Ready mixed paint, air drying, red oxide-zinc chrome, priming (<i>first revision</i>)
729 : 1979	Drawer locks, cupboard locks and box locks (<i>third revision</i>)		
814 (Part 1) : 1974	Specification for covered electrodes for metal arc welding of structural steels: Part 1 For welding products other than sheets (<i>fourth revision</i>)	2155 : 1982	Cold forged solid steel rivets for hot closing (6 to 16 mm diameter) (<i>first revision</i>)
814 (Part 1) : 1974	Specification for covered electrodes for metal arc welding of structural steels: Part 2 For welding sheets (<i>fourth revision</i>)	2932 : 1974	Enamel, synthetic, exterior (a) undercoating, (b) finishing (<i>first revision</i>)
1570 (Part 5) : 1985	Schedules for wrought steels for general engineering purposes: Part 5 Stainless and heat-resisting steels (<i>second revision</i>)	9550 : 1980	Bright bars
		11188 (Part 2) : 1991	Vault (strong room) doors: Part 2 Tests for burglary resistance (<i>first revision</i>)
		11188 (Part 3) : 1991	Vault (strong room) doors: Part 3 Tests for fire resistance (<i>first revision</i>)

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